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Molecular dynamics simulation of yttria (Y_2O_3) nanoparticle impacts

IC project: w21_nanoparticle_impaction
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All impacts have a fixed impact velocity of 2400 m/s and the same crystallographic orientations.

1. Increasing the diameter of the impacting particle increases the duration of deformation.
2. Larger particles make the speed of sound more relevant, as the top of the particle may not be aware that the bottom of the particle stopped.
3. Greater atomic spatial resolution allows for the development of adiabatic shear bands, facilitating deformation.
4. The combination of (1-3) result in large particles having significantly more deformation than small particles despite having the same incoming energy per unit mass.